8.7 Worker Health and Safety

GWF Energy LLC proposes to build and operate the Tracy Peaker Project (TPP), a nominal 169-megawatt (MW) simple-cycle power plant, on a nine-acre, fenced site within a 40-acre parcel in an unincorporated portion of San Joaquin County. The site is located immediately southwest of Tracy, California, and approximately 20 miles southwest of Stockton, California. The TPP would consist of the power plant, an onsite 230-kilovolt (kV) switchyard, an approximately five-mile, 230-kV electric transmission line, an approximately 1,470-foot water supply pipeline (as measured from the fence line), an onsite natural gas supply interconnection, and improvements to an existing dirt access road approximately one mile in length. An approximately 5.2-acre area west of the plant fence line and within the 40-acre parcel would be used for construction laydown and parking. Figure 2-1 shows the regional location of the GWF site. Figure 2-2 shows the immediate site location of the GWF project, including the location of the proposed generating facility and the proposed transmission, water supply, and access routes.

This section describes the health and safety programs and procedures that would be implemented during construction and operation of the Tracy Peaker Project (TPP), including the transmission line, the water supply pipeline, and the power generation facility. Health and safety information on the electric transmission system is provided in Section 6.0 (Electric Transmission). These programs would be established in accordance with applicable laws, ordinances, regulations, and standards (LORS) to ensure the safety and well-being of all workers participating in the TPP. The following sections describe the affected environment, applicable LORS, anticipated occupational hazards associated with the construction and the operation and maintenance of the facility, health and safety programs that would be implemented during the construction and operations/maintenance phases, and safety permit requirements and local agency contacts.

8.7.1 Affected Environment

The TPP includes the construction and operation of a natural-gas-fired peaker power plant with ancillary support facilities, including a 230-kilovolt (kV) power transmission

line and a water supply line. Figure 2-3 depicts the detailed facility layout. Figure 8.12-1 shows the locations of the hazardous materials used at the TPP. Figure 8.7-1 shows the locations of the fire protection systems and emergency equipment at the TPP.

8.7.2 Laws, Ordinances, Regulations, and Standards

Conformance with LORS is discussed in Section 8.7.3.1 for construction-related requirements and in Section 8.7.3.2 for requirements applicable to operations and maintenance. Conformance with training requirements is covered in Sections 8.7.4.1 and 8.7.4.2 for construction and for operations and maintenance, respectively. The LORS applicable to worker health and safety are summarized in Table 8.7-1. California is one of 23 states in the nation that manages its own Occupational Safety and Health Administration (Cal-OSHA). As such, Cal-OSHA regulations would take precedence over the federal OSHA regulations at this site. In addition to requiring all contractors and employees to comply with established LORS, periodic health and safety compliance self-audits would be performed during the course of the construction, operation, and maintenance of the TPP to ensure that employees are following regulations.

8.7.3 Occupational Safety and Health

Construction, operation, and maintenance activities associated with the TPP may expose workers to a variety of physical and chemical hazards. Worker exposure to these hazards would be minimized through adherence to engineering design criteria, implementation of appropriate administrative procedures, use of personal protective equipment, and compliance with applicable health and safety LORS. Potential hazards that workers may be exposed to while working on the TPP are presented in Table 8.7-2. Formal health and safety procedures and programs would be established and implemented by GWF and its contractors to control the various hazards and to provide for a safe workplace.

The programs, regulations, and preventive measures intended to protect worker health and safety are described in the construction and the operations and maintenance portions of this section. The comprehensive health, safety, and fire prevention program includes an

accident/injury prevention program intended to ensure safe operations upon facility startup and during operation.

During the construction, operation, and maintenance of the TPP, employers would develop and implement health and safety programs to mitigate the identified workplace hazards and to protect the health and safety of workers. Brief descriptions and outlines of anticipated program content are provided in the following sections.

8.7.3.1 Construction Health and Safety Programs

During construction, the general contractor would be responsible for enforcing contract provisions to ensure compliance with the construction safety program and federal, state, and local health standards that pertain to worker health and safety. Consistent with OSHA's policy on multi-employer work sites, each employer would be responsible for the health and safety of its own employees. Periodic health and safety audits would be held to verify contractor and subcontractor compliance with contractual health and safety obligations.

Construction Injury and Illness Prevention Program. The written Construction Safety Program would include provisions to ensure compliance with requirements of Cal-OSHA's Injury and Illness Prevention Program (IIPP) (California Code of Regulations [CCR] Title 8, Section 1509). The written Construction Safety Program would include:

- A written Code of Safe Practices for construction operations, posted in the Code of Safe Practices at a conspicuous location at the job site office and provided to each supervisor, who shall have it readily available;
- Identification of the person or persons responsible for implementing the Construction Safety Program;
- A description of the system for identifying workplace hazards, including workplace inspections, job hazard analysis, and written hazard assessments;
- Periodic meetings with employee representatives, supervisors, and management to discuss safety issues, including compliance assessments, accidents, injuries, and new or modified health and safety procedures;
- A system for ensuring employee and subcontractor compliance;

- Routine "tool box" or "tailgate" safety meetings conducted with employees and supervisors;
- System for promoting employee feedback and suggestions for improving workplace safety;
- Procedures for promptly correcting unsafe conditions; and
- Identification of safety training and experience requirements for specific work activities.

Construction Personal Protective Equipment Program. Contractor employees would be required to use personal protective equipment (PPE) during construction. The required PPE would conform to GWF standards as well as general industry standards. The use of PPE for site activities includes, but is not limited to, the items described in Table 8.7-3. All PPE worn on site would comply with Cal-OSHA and American National Standards Institute (ANSI) requirements. Respiratory protection would be included in the PPE program. Employees would not be required to wear respiratory protection until they have received a medical evaluation, respirator fit-testing, and training on the proper use, limitations, and care of respirators.

Construction Exposure Monitoring Program. Appropriate exposure monitoring would be conducted to evaluate potential employee exposures to hazardous/toxic materials. Air monitoring may be conducted if necessary to evaluate the potential for employee exposure to the contaminants of concern. Airborne exposure would be controlled through the implementation of engineering controls, administrative controls, or PPE. Air monitoring would also be required in support of other safety programs, including confined space entry, hot work permits, and emergency response. Sound-level monitoring would also be performed as necessary during the construction phase to evaluate potential employee noise exposures.

Construction Onsite Fire Suppression and Prevention. The TPP would rely on both onsite fire protection systems and local fire protection services. A fire protection and prevention plan would be followed throughout all phases of construction and would specify necessary firefighting equipment. The fire protection and prevention plan would address each of the following requirements:

- General requirements

- Responsibilities
- Housekeeping
- Employee alarm/communication system
- Portable fire extinguishers
- Fixed firefighting equipment
- Fire control
- Flammable and combustible liquid storage
- Use and handling of flammable and combustible liquids
- Dispensing and disposal of flammable and combustible liquids
- Servicing and refueling areas
- Training

During facility construction, the fire suppression system would be placed in service as soon as practicable to provide early fire protection. In addition, fire hydrants and hoses would be available. Construction fire prevention procedures would be developed in accordance with applicable regulations (8 California Code of Regulations [CCR], Section 1620 et seq.) and would be followed as necessary to prevent construction-related fires. Special emphasis would be given to operations involving open flames, such as welding, metal cutting, and brazing. Hot work permits would be required for activities that present a fire hazard, and the personnel involved in such operations would receive appropriate training by the contractor. In addition, a fire watch that employs the appropriate class of extinguishers or other equipment would be maintained during hot work operations. Site personnel would not be expected to fight fires past the incipient stage.

The onsite fire suppression system during construction would consist of portable and fixed firefighting equipment. Portable firefighting equipment would consist of fire extinguishers and small hose lines, in conformance with Cal-OSHA and the National Fire Protection Association (NFPA). The contractor safety representatives would conduct periodic fire prevention inspections.

Fire extinguishers would be inspected monthly and replaced immediately if defective or in need of recharge. All firefighting equipment would be situated so as to allow for unobstructed access to the equipment and would be conspicuously marked. A temporary or permanent water supply, of sufficient volume, duration, and pressure to operate the required firefighting equipment, would be provided. Combustible materials would be controlled in covered, roll-off dumpsters. The designated flammable-materials storage areas and flammable-materials storage containers would be provided with adequate fire prevention systems.

Materials brought on site by contractors must conform to contract requirements, insofar as flame resistance or fireproofing are concerned. The contractor must provide a copy of the Material Safety Data Sheet for each material and retain a copy in project files. Specific materials in this category include fuels, paints, solvents, plastic materials, lumber, paper, boxes, and crating materials. Specific attention would be given to the storage of compressed gases, fuels, solvents, and paints.

Construction Offsite Fire Suppression Support. The TPP onsite fire suppression systems would be supported by the City of Tracy Fire Department, which would provide assistance as described under the fire protection provisions developed for worker safety during construction activities. The nearest fire stations are located at 16502 W. Schulte Road (Station No. 94) and at 595 West Central Avenue (Station No. 97), both of which can respond within five minutes. The local fire response units would be informed regarding the types and locations of potential fire hazards at the site. This information would be incorporated in emergency response planning. The City of Tracy Fire Department would conduct routine fire prevention inspections.

Construction Emergency Action Plan. An emergency action plan (EAP) would be developed for the construction phase of the TPP. The EAP would designate responsibilities and actions to be taken in the event of an emergency at the site. All employees working at the site would be trained in the contents of the plan. The EAP would include:

- Emergency roles and responsibilities
- Emergency notification procedures

- Egress routes and mustering points

Construction Written Safety Programs. Additional written safety programs that would be established for the construction phase include, but are not limited to:

- Hazard communication program
- Confined space program
- Control of hazardous energy program (lockout/tagout)
- Hearing conservation program
- Respiratory protection program
- Bloodborne pathogens control program
- Injury and accident reporting and investigation program
- Ergonomics program
- Emergency response program, including first-aid and medical services
- Smoking policy
- General housekeeping, materials handling, and storage procedures
- Vehicle and traffic procedures
- Elevated work procedures
- Heavy equipment procedures
- Hot work procedures
- Crane and hoist procedures
- Compressed-gas and -air handling procedures
- Subcontractor safety programs
- Equipment inspection programs
- Supervisor safety and health orientations
- Excavation and trenching program

- Hazard identification team and safety marshal program

8.7.3.2 Operations and Maintenance Health and Safety Programs

Upon implementation of routine operations at the TPP, the construction safety and health program would transition into established GWF safety programs for routine operations and maintenance. Program outlines for the Injury and Illness Prevention Plan, the Fire Protection and Prevention Program, the Emergency Action Plan, the Hazardous Materials Management Program, and the PPE Program that would be implemented are provided below.

Injury and Illness Prevention Plan. The primary mitigation measures for worker hazards during normal plant operations and maintenance are contained in the IIPP, which is required by Title 8 CCR, Section 3203. A written IIPP designates a safety representative, who is responsible for implementing the program. A written IIPP also describes safety training for new employees and procedures for tracking safety training. Job safety analyses would identify the safety hazards related to each work task and establish procedures for avoiding, correcting, reporting, and notifying employees of these hazards.

An IIPP would contain the following information:

- The person(s) with authority and responsibility for implementing the program
- A system for ensuring that employees comply with safe and healthy work practices
- A system for facilitating employer-employee communications regarding safety
- Procedures for identifying and evaluating workplace hazards, including inspections to identify hazards and unsafe conditions
- Methods for correcting unhealthy or unsafe conditions in a timely manner when there is an imminent danger
- An employee training program that includes:
  - introducing the program
  - training of new, transferred, or promoted employees
  - training on new processes and equipment

  - training for supervisors
  - training for contractors

- Methods for documenting inspections and training and for maintaining appropriate records

Fire Protection and Prevention Program. The fire protection program at the TPP site would include measures to safeguard human life, prevent personnel injury, preserve property, and minimize downtime due to fire or explosion. The program would principally involve physical arrangements, such as sprinkler systems, water supplies, and fire extinguishers. Fire protection measures would include measures to prevent the inception of fires. Points of special concern for this program are adequate exits, fire-safe construction, reduction of ignition sources, and control of fuel sources.

The City of Tracy Fire Department, Station No. 94 and No. 97, would provide fire protection for the TPP site. As such, fire suppression systems would be subject to review and final approval by the City of Tracy Fire Department. A California-registered fire protection engineer would design the fire suppression systems, and fire protection equipment would be installed and maintained in accordance with applicable NFPA standards and recommendations (NFPA, 2000).

The City of Tracy Fire Department representative from Station No. 94 would perform the final inspection of the TPP site when construction is complete. In addition, the City of Tracy Fire Department would conduct periodic fire and life safety inspections thereafter, including review and approval of programs for regular equipment inspections and servicing and for the training of employees in fire protection procedures. In addition, the project's insurance carrier would provide annual inspections by a fire protection specialist. A licensed contractor would service the fixed carbon dioxide (CO_2) and portable fire extinguishers.

The Fire Protection and Prevention Program for the facility would be designed and implemented to protect both personnel and property. GWF has a Fire Prevention and Protection Program for its existing power plants that would be modified for a site-specific application to the TPP. The existing program specifically addresses:

- Responsibility for maintaining equipment and controlling the accumulation of flammable or combustible materials
- Procedures in the event of fire
- Fire alarm and protection equipment
- System and equipment maintenance
- Monthly inspections
- Annual inspections
- Firefighting demonstrations and training
- Good housekeeping practices

Fire Suppression. The following fire suppression systems are proposed for the TPP:

- **FM 200 Fire Protection System.** This system would protect the gas turbine, generator, and accessory equipment compartments from fire. The system would have fire detection sensors in all compartments. The actuating of one sensor would provide a high-temperature alarm on the combustion turbine control panel. The actuating of a second sensor would trip the combustion turbine, turn off ventilation, close ventilation openings, and automatically release the FM 200. The FM 200 would be discharged at a design concentration adequate to extinguish the fire.
- **Fire Hydrants/Hose Stations.** This system would supplement the plant's fire protection system. Water would be supplied from the underground fire water system.
- **Sprinkler System.** A fire suppression system would be installed in the plant administration control and maintenance building. The system would use water for combustible fires.
- **Smoke Detectors and Fire Extinguishers.** These would be provided at all locations that have potential fire hazards due to the presence of combustible liquids, solids, or other highly flammable materials, and where major property damage could result. Extinguishers would be located at Uniform Fire Code–approved intervals throughout the facility, as directed by the local fire inspector and selected for the appropriate class of service.

Water would be used as the primary extinguishing agent. Chemical and gas extinguishing agents (permanently installed or in portable extinguishers) would be provided in

special hazard areas where water would be ineffective or harmful to the equipment being protected.

Emergency Action and Evacuation Plan. In addition safety and environmental features and design measures to minimize emergencies and their effects on public and worker safety, the TPP would have a site-specific Emergency Action and Evacuation Plan. A sample plan outline is provided in Table 8.7-4. This plan would be modified, if necessary, to incorporate new emergency issues. The Emergency Action and Evacuation Plan addresses potential emergencies, including fires or explosions, hazardous materials releases, medical emergencies, natural disasters, bomb threats, train derailment, and workplace violence. The plan describes notification and evacuation procedures, points of contact, responsibilities, and other actions to be taken in the event of an emergency. The plan also includes evacuation and assembly area maps. The Emergency Action and Evacuation Plan would be used in conjunction with the IIPP.

Hazardous Materials Management Program. As described in Section 8.12 (Hazardous Materials Handling), several chemicals would be stored and used during the operation of the TPP. The storage and handling of chemicals would follow applicable LORS to minimize risk to workers. Chemicals would be identified and stored in appropriate chemical storage facilities. Bulk chemicals would be stored in aboveground storage silos; other chemicals would be stored in their delivery containers. Chemical storage and chemical feed areas would be surrounded by temporary or permanent containment or curbing to contain leaks and spills. The containment areas would be sized to hold an appropriate volume (considering the potential for the local hazard contingencies) as designated by a California-registered professional engineer.

Safety showers and eyewash stations would be provided in or adjacent to chemical storage and use areas in accordance with CCR Title 8 requirements. Standard PPE for use during materials handling activities would be provided in a readily available location for use during minor chemical spill containment and cleanup activities by plant personnel. Adequate supplies of absorbent material would also be available on site for minor spill cleanup. An emergency response team trained to handle accidental releases of the chemicals used and stored at the plant would be available through contract. Emergency contact numbers would be

available to summon assistance from these contractors and to notify local agencies. These procedures would be detailed in the Emergency Action and Evacuation Plan.

Personal Protective Equipment Program. The existing PPE program addresses the following topics:

- Hazard analysis and prescription of PPE
- Personal protective devices
- Head protection
- Eye and face protection
- Body protection
- Hand protection
- Foot protection
- Sanitation
- Safety belts and life lines
- Protection from electric shock
- Respiratory protective equipment

Written Safety Program. Additional written safety programs in place at the existing GWF plant would be modified as needed to address the overall operations and maintenance health and safety plan for the TPP. These programs include, but are not limited to, the following:

- Hazard Communication Program
- Respiratory Protection Program
- Hearing Conservation Program
- Hazardous Energy Control Program
- Confined Space Entry Program

- Safe Work Practices Program
- Ergonomics Program
- General Facility Safety Procedures
  - Compressed-Gas Safety Procedures
  - Heavy Equipment Safety Procedures
  - Hand Tools and Equipment Guarding Procedures
  - Hoist and Rigging Safety Procedures
  - Slips, Trips, and Falls Prevention Procedures
  - Hot Work Safety Procedures
- Fall Protection Program
- Contractor Safety Program
- Risk Management Plan

8.7.4 Safety Training Programs

GWF maintains a training program to ensure that workers possess the necessary information to protect themselves from hazards. The program provides comprehensive training for construction personnel and operations/maintenance personnel. The program would be modified as needed to incorporate the TPP.

8.7.4.1 Construction Safety Training Program

Workers participating in the construction phase of the TPP would be required to participate in applicable training programs designed to protect them and others from work-related injuries. Construction personnel would be required to attend a site safety orientation and additional training based on their specific job responsibilities. All training courses would be documented, and attendance records would be maintained at the job site trailer. Table 8.7-5 provides an overview of the training programs that would be available to construction personnel.

8.7.4.2 Operations and Maintenance Safety Training Program

Current GWF plant personnel would operate and maintain the TPP. These employees receive job-specific training that includes instruction in pertinent safety regulations. These instructions are given to new employees and as part of an ongoing training program in hazard recognition and avoidance. The program would be modified as needed to incorporate the TPP. Safe working conditions, work practices, and protective equipment requirements are communicated in the following manner:

- A new, promoted, or transferred employee receives safety training orientation.
- Safety meetings are held with employees.
- "Toolbox/tailgate" safety meetings are conducted periodically for each crew. General safety topics and specific hazards are discussed. Comments and suggestions from all employees are encouraged.
- A monthly staff safety meeting is held for supervisors.
- Hazard communication training, including California Proposition 65 warnings and discharge prohibitions, is conducted as necessary when new hazardous materials are introduced to the workplace.
- Material Safety Data Sheets are available as required for all appropriate chemicals.
- A bulletin board with required postings and other information is maintained at the plant site.
- Warning signs (e.g., hazardous waste storage area or confined space area) are posted in hazardous areas; these signs comply with applicable regulations (i.e., signs would be bilingual, have the specified font size, etc.).

The safety orientation program provided to new employees is described below:

- The safe work rules for the TPP are explained to each employee.
- A written description of applicable safe work practices is given to each employee.

- The Hazard Communication Program and requirements for personal protection for the types of hazards that may be encountered at the TPP site are explained and documented.

- Unusual hazards found at the work site are explained in detail to each employee, including any specific requirements for personal protection.

- The foreman would explain the job safety requirements to each new employee prior to an initial assignment and upon any reassignment.

Contractors. An element of the onsite Operations and Maintenance Safety Training Program is contractor safety. The management representative for the general contractor would provide each contractor and subcontractor with a list of potential safety hazards for each assigned activity. The list includes safety rules, chemical exposure hazards, physical hazards, and personal protection equipment. In addition, contractors are invited to attend tailgate safety meetings.

Table 8.7-6 provides an overview of the current training programs available to operations and maintenance personnel.

8.7.5 Permitting Agencies

Table 8.7-7 provides a list of applicable permits related to the protection of worker health and safety for the TPP. The list identifies the activities covered and the application requirements to obtain each permit.

8.7.6 Permitting Contacts

All permits noted in Table 8.7-7 may be obtained from the Cal-OSHA district office, which for workplaces in San Joaquin County is located in Concord, California.

8.7.7 Permitting Schedule

Permits listed in Table 8.7-7 are supplied on an as-needed basis by any Cal-OSHA district or field office. Activities that require 24-hour advance notification to Cal-OSHA before being initiated are also listed in Table 8.7-7. No specific permitting schedule is provided,

as the permits and notifications may be required at variable times during the construction and operation of the TPP.

8.7.8 Agency Contacts

Agency contacts regarding worker health and safety at the TPP are as follows:

Agency	Contact/Title	Telephone
City of Tracy Fire Department	Administration "A" Shift Battalion Chief - Mark Mehring "B" Shift Battalion Chief - Larry Fragoso "C" Shift Battalion Chief - Jeff Mason	(209) 831-4700 (209) 831-4706 (209) 831-4708 (209) 831-4704
Fire Station No. 94 16502 W. Schulte Rd. Tracy, CA	See above	(209) 832-0153
Fire Station No. 97 595 West Central Ave. Tracy, CA	See above	(209) 831-4730
Cal-OSHA (District Office) 1209 Woodrow Avenue, Suite C4 Modesto, CA 95350	Glenn Johnson	(209) 576-6260

8.7.9 References

California Code of Regulations. Title 8. General Industry Safety Orders (Chapter 4, Subchapter 7) and Construction Safety Orders (Chapter 4, Subchapter 4).

Code of Federal Regulations. Title 29, Part 26, Health and Safety for Construction, and Title 29, Part 1910, Occupation Safety and Health Standards.

National Fire Protection Association, 2000. A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. Quincy, Massachusetts. On-line version available at http://www.nfpa.org/codes/index.html.

TABLES

Table 8.7-1
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
California Occupational Safety and Health Act of 1973	Title 8, CCR	The act establishes the Cal-OSHA and establishes minimum safety and health standards for work operations that occur in the state.	8.7.3
Cal-OSHA	8 CCR, Section 339	Requires listing of hazardous chemicals relating to the Hazardous Substance Information and Training Act.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 450 et seq. – 560 et seq.	Establishes safety orders for pressurized vessels, including air tanks, anhydrous ammonia, and general safe work practices.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 750 et seq.	Establishes safety orders for work with high pressure steam.	8.7.3.1, 8.7.3.2
	8 CCR, Construction Safety Orders (Sections 1500 et seq. – 1938 et seq.)	Establishes safety orders for construction work.	8.7.3.1
	8 CCR, Sections 1508 et seq. – 1527 et seq.	Requirements for IIPP, PPE, and general site safety.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1528 et seq. – 1537 et seq.	Requirements for controlling exposures to hazardous air contaminants.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 1539 et seq. – 1547 et seq.)	Requirements for excavations and trenching.	8.7.3.1
	8 CCR, Sections 1590 et seq. – 1596 et seq.	Requirements for earth moving and haulage.	8.7.3.1
	8 CCR, Sections 1597 et seq. – 1599 et seq.	Requirements for vehicles, traffic control, flaggers, barricades, and warning signs.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 1604 et seq. – 1605 et seq.	Requirements for construction hoists.	
	8 CCR, Sections 1620 et seq. – 1635 et seq.	Requirements for railings, ramps, stairs, access and egress, openings in floors, roofs and walls, and temporary floors.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 1635 et seq. – 1667 et seq.	Requirements for scaffolding.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 1669 et seq. – 1678 et seq.	Requirements for safety belts, nets, and ladders.	8.7.3.1, 8.7.3.2

Table 8.7-1 (continued)
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
Cal-OSHA (continued)	8 CCR, Sections 1680 et seq. – 1708 et seq.	Requirements for saws, power-actuated tools, miscellaneous tools and equipment.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 1709 et seq. – 1722 et seq.	Requirements for steel reinforcing, concrete pouring, and structural steel erection operations.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 1760 et seq.	Electrical requirements for construction work.	8.7.3.1
	8 CCR, Sections 1920 et seq. – 1938 et seq.	Requirements for construction-related fire protection and prevention.	8.7.3.1, 8.7.3.2
	8 CCR, Electrical Safety Orders (Sections 2299 et seq. – 2974 et seq.)	Establishes safety orders for installation of low- and high-voltage electrical systems.	8.7.3.1, 8.7.3.2
	8 CCR, General Industry Safety Orders (Sections 3200 et seq. – 6184 et seq.)	Establishes safety orders for general industry work, including operations and maintenance.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 3200 et seq. – 3583 et seq.	Requirements for IIPP, PPE, and general site safety.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 3620 et seq. – 3920 et seq.	Requirements for mobile equipment operation.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 3940 et seq. – 4647 et seq.	Requirements for power transmission equipment, rotating equipment, moving parts, points of operation, etc.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 4794 et seq. – 4884 et seq.	Requirements for compressed gases and gas systems for cutting and welding.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 4850 et seq. – 4853 et seq.	Requirements for electric welding.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 4884 et seq. – 5049 et seq.	Requirements for cranes and other hoisting equipment.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 5094 et seq. – 5100 et seq.	Requirements for control of excessive noise exposure and ergonomic hazards.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 5139 et seq. – 5223 et seq.	Requirements for the control of hazardous substances, including Hazard Communication Program requirements.	8.7.3.1, 8.7.3.2

Table 8.7-1 (continued)
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
Cal-OSHA (continued)	8 CCR, Sections 5615 et seq. – 5629 et seq.	Requirements for the control of hazards from flammable liquids, gases, and vapors.	8.7.3.1, 8.7.3.2
	8 CCR, Sections 6150 et seq. – 6184 et seq.	Requirements for fire protection and prevention.	8.7.3.1, 8.7.3.2
	8 CCR, Part 6	Health and safety requirements for working with tanks and boilers.	8.7.3.1, 8.7.3.2
Federal Occupational Safety and Health Administration[1]	29 CFR 1926	Federal health and safety regulations pertaining to construction activities.	8.7.3.1, 8.7.3.2
	29 CFR 1910	Federal health and safety regulations pertaining to general industry.	8.7.3.1, 8.7.3.2
California Health and Safety Code	Sections 25500 et seq. (LaFollette Bill)	Requires that every new or modified facility that handles, treats, stores, or disposes of more than the threshold quantity of any of the listed acutely hazardous materials prepare and maintain a Risk Management Plan.	8.7.3.2
	Sections 25500 et seq. – 25541 et seq.	Requires the preparation of a Hazardous Materials Business Plan that details emergency response plans for a hazardous materials emergency at the facility.	8.7.3.2
City of Tracy Fire Department	UFC, Article 80	Requires the prevention, control, and mitigation of dangerous conditions related to storage, dispensing, use, and handling of hazardous materials and information needed by emergency response personnel.	8.7.3.1, 8.7.3.2
	NFPA 10: Portable Fire Extinguishers	Requirements for portable fire extinguishers pertaining to selection, placement, inspection, maintenance, and employee training.	8.7.3.1, 8.7.3.2
	NFPA 12: Carbon Dioxide Fire Extinguishing Systems	Requirements for the installation and use of carbon dioxide extinguishing systems.	8.7.4, 8.7.3.2
	NFPA 13 & 13A: Sprinkler Systems	Guidelines for selection, installation, maintenance, and testing of fire sprinkler systems.	8.7.3.2
	NFPA 14: Standpipe and Hose Systems	Guidelines for the selection and installation of standpipe and hose fire protection systems.	8.7.3.2
	NFPA 15: Water Spray Fixed Systems	Guidelines for the selection and installation of fixed water spray systems.	8.7.3.2

Table 8.7-1 (continued)
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
City of Tracy Fire Department (continued)	NFPA 22: Water Tanks and Private Fire Protection	Requirements for water tanks that are used for private fire protection.	8.7.3.2
	NFPA 24: Installation of Private Fire Service Mains and their Appurtenances	Requirements for the installation of private fire service mains and appurtenances.	8.7.3.2
	NFPA 26: Supervision of Valves Controlling Water Supplies	Guidance for the installation and supervision of valves used to control water supplies.	8.7.3.1, 8.7.3.2
	NFPA 30: Flammable and Combustible Liquids	Requirements for storage, transfer, and use of flammable and combustible liquids.	8.7.3.2
	NFPA 37: Stationary Combustion Engines and Gas Turbines	Fire protection requirements for the installation and use of combustion engines and gas turbines.	8.7.3.2
	NFPA 50A: Gaseous Hydrogen Systems	Fire protection requirements for hydrogen systems.	8.7.3.2
	NFPA 54: National Fuel Gas Code	Fire protection requirements for the use of fuel gas.	8.7.3.2
	NFPA 70, 70B & 70E: National Electric Code	Guidance on the safe selection and work practices associated with the design, installation, construction, and maintenance of electrical systems.	8.7.3.1, 8.7.3.2, 8.7.4
	NFPA 71: Installation, Maintenance, and Use of Central Station Signaling Systems	Requirements for the installation, maintenance, and use of central station signaling systems.	8.7.3.2
	NFPA 72A, 72E & 72F: Local Protective Signaling System, Automatic Fire Detection System, Emergency Voice/Alarm Communication System	Requirements for the design, installation, use, and maintenance of local protective signaling systems, automatic fire detection systems, and emergency communication systems.	8.7.3.2
	NFPA 78: Lightning Protection Code	Requirements for lightning protection.	8.7.3.2
	NFPA 80: Fire Doors and Windows	Requirements for fire doors and windows.	8.7.3.2
	NFPA 90A: Installation of Air Conditioning and Ventilation Systems	Guidance for the installation of air conditioning and ventilation systems.	8.7.3.2

Table 8.7-1 (continued)
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
City of Tracy Fire Department (continued)	NFPA 101: Life Safety, Fire in Buildings and Structures	Requirements for the design and construction of means of egress from structures.	8.7.3.2
	NFPA 291: Fire Flow Testing and Marking of Hydrants	Requirements for flow testing and marking of fire hydrants.	8.7.3.2
	NFPA 1962: Care, Maintenance and Use of Fire Hoses	Requirements for the care, use, and maintenance of fire hoses, connections, and nozzles.	8.7.3.2
City of Tracy Building Inspector	ANSI/ASME Boiler and Pressure Vessel Code	Specifications and requirements for boilers and pressure vessels.	8.7.3.2
	ANSI, B31.2, Fuel Gas Piping	Specifications and requirements for fuel gas piping.	8.7.3.2

[1] Cal-OSHA has primary jurisdiction for worker health and safety in California. These regulations are provided for reference purposes and apply as referenced in Cal-OSHA regulations.

ANSI/ASME = American National Standards Institute/American Society for Mechanical Engineers
Cal-OSHA = California Occupational Safety and Health Administration
CCR = California Code of Regulations
CFR = Code of Federal Regulations
IIPP = Injury and Illness Prevention Program
LORS = Laws, ordinances, regulations, and standards
NEPA = National Environmental Policy Act
NFPA = National Fire Protection Association
PPE = Personal protective equipment
UFC = Uniform Fire Code

Table 8.7-2
TPP Hazard Analysis

Activity	Exposure Potential	Potential Hazard	Control Strategies
Heavy Equipment Operation	C, O, M	Employee injury and property damage from collisions with workers and/or facility equipment.	Implement heavy equipment safety program and ensure that operators are properly trained.
Trenching and Excavation	C, O, M	Employee injury and property damage from collapse of trenches and excavations or contact with underground utilities.	Implement an excavation and trenching safety program and ensure that operators are properly trained. Require digging permits prior to initiating excavation or trenching.
Work at Elevation	C, O, M	Employee injury due to falls from the same level and elevated areas.	Implement a fall protection program that requires fall protection systems whenever unprotected work is performed at heights greater than 6 feet.
General Project Work	C, O, M	Employee injury resulting from a slip, trip, or fall.	Maintain good housekeeping, adequate lighting, and compliant stairways and railings.
Crane and Derrick Operation	C, O, M	Employee injuries and property damage due to falling loads.	Implement hoisting and rigging safety program and ensure that operators are properly trained.
Hot Work	C, O, M	Employee injuries and property damage due to fire or explosion.	Implement fire protection and prevention program, require hot work permits, and ensure that welders, pipe fitters, etc., are properly trained.
Working with Combustible Liquids	C, O, M	Employee injuries and property damage due to fire or explosion.	Implement fire protection and prevention program that includes procedures for the proper storage and use of flammable or combustible liquids.
Concrete/Forms Work	C	Employee injuries due to work at height, slips, trips, and falls.	Wear fall protection when working at height, protect exposed rebar, and maintain good housekeeping.

Table 8.7-2 (continued)
TPP Hazard Analysis

Activity	Exposure Potential	Potential Hazard	Control Strategies
Electrical Work	C, O, M	Employee injuries due to contact with energized parts.	Implement energy control program, including LO/TO of energized sources.
Materials Handling	C, O, M	Employee injuries due to improper lifting.	Implement an ergonomics program and train employees in proper lifting techniques.
Confined Space Entries	C, O, M	Employee injuries due to suffocation, exposure to toxic materials, engulfment, etc.	Implement a confined space program, including permit procedures and air monitoring requirements.
Compressed Gas Storage	C, O, M	Employee injuries and equipment damage due to explosive release of pressure.	Implement a compressed gas safety program, including procedures for proper use and storage.
Power Tool Use	C, O, M	Employee injuries due to improper use, or use of damaged power tools.	Implement procedures for inspecting power tools before operation and train employees on the proper use and care of power tools.
Working with or near hazardous or toxic materials	C, O, M	Employee injuries due to exposure to hazardous and/or toxic materials.	Implement hazard communication program and exposure control procedures, including engineering controls, administrative controls, and PPE for activities that may expose employees to hazardous/toxic materials.
Working with or near noisy equipment	C, O, M	Employee overexposure to noise.	Implement a hearing conservation program to include: identifying high noise activities and sources, sound level monitoring, and PPE.
Working with or near exposed machinery	C, O, M	Employee injuries from entanglement in rotating or moving equipment.	Develop and implement machine-guarding equipment LO/TO procedures.

C = construction phase
O = facility operations
M = facilities maintenance
LO/TO = lockout/tagout
PPE = personal protective equipment

Table 8.7-3
Protective Equipment Guide

Body Area	Hazards	Recommended Protection
Eyes/Face	Low-velocity flying particles	Safety glasses with side shields
	High-velocity chips and sparks	Impact goggles or safety glasses with full face shield
	Corrosive liquid splash during transfer	Splash-proof goggles and face shield
	Welding – injurious light rays	Welding screens and welding hoods with appropriate eye filter lenses
Head/Ears	General overhead hazards, overhead rigging, materials handling, maintenance, and general construction operations	Nonconductive hard hat
	Noise exposure	Ear plugs or muff
Respiratory System	Low-hazard inert dust	Nuisance dust mask
	Welding fumes	Dust, fume, mist respirator
	Low-concentration solvent vapors	Cartridge-type air purifying respirator with organic vapor cartridges
	Acid or base mists	Cartridge-type air purifying respirator with appropriate acid/base cartridges
	High-concentration dusts or toxic vapors, gases	Air line respirator
	Oxygen-deficient atmospheres, IDLH concentrations of vapors, gases	Self-contained breathing apparatus
Hands and Arms	Handling of rough or sharp objects	Leather gloves
	Handling of hot objects	Insulated gloves
	Using solvents	Chemical-resistant synthetic gloves

Table 8.7-3 (continued)
Protective Equipment Guide

Body Area	Hazards	Recommended Protection
Feet and Legs	Handling light objects	Safety shoes
	Handling heavy objects	Steel-toed safety boots
	Using brush hooks or scythes	Shin guards
	Working with corrosive liquids	Chemical-resistant safety boots
	Underground work	Steel-toed safety boots
Trunk and Full Body	Normal work activities	Cotton pants and shirt
	Hot or corrosive liquids	Chemical resistant apron or full body suit
	Punctures, impact, or cuts	Canvas or leather kickback apron or metal mesh apron
	Heat stress	Provide covered break areas and remind workers to drink plenty of fluids.
Fall Protection/Rescue	Working from elevated structure of platform without standard railings	Full body safety harness and lanyard
	Vessel (confined space) entry	Full body safety harness and lifeline or wristlets and lifeline
	Suspended scaffolds	Full body safety harness/lanyard

IDLH = Immediately dangerous to life and health.

Table 8.7-4
Sample Operations Emergency Action and Evacuation Plan Outline

1.0 Introduction
2.0 Emergency Organizational Structure
- 2.1 Purpose
- 2.2 Scope

3.0 Training
4.0 Notification of Emergencies
- 4.1 Notifications
- 4.2 Internal Notification
- 4.3 External Communication
- 4.4 Community Alert Network
- 4.5 General Emergency Response

5.0 Evacuation Procedures
- 5.1 Evacuation Procedures
- 5.2 Assembly Areas
- 5.3 Re-Entry
- 5.4 Key Points for All Site Personnel During Evacuation
- 5.5 Area Relocation
- 5.6 Long-Term Evacuation

6.0 Fires or Explosions
7.0 Hazardous Materials Releases
- 7.1 Purpose
- 7.2 Release Potential
- 7.3 Small Spill Release Procedures
- 7.4 Large Release Procedures
- 7.5 Disposal of Cleanup Wastes
- 7.6 Water Pollution Control

8.0 Medical Emergencies
9.0 Natural Disasters
- 9.1 Major Earthquakes
- 9.2 Floods

10.0 Sabotage and Bomb Threats
- 10.1 Sabotage
- 10.2 Bomb Threats

11.0 Train Derailment
12.0 Workplace Violence
13.0 Emergency Public Information
14.0 Coordination with Outside Agencies

Table 8.7-5
Construction Training Program

Training Course	Target Employees
Site Safety Orientation	All
Injury and Illness Prevention Plan	All
Emergency Action and Evacuation Plan	All
PPE Program	All
Heavy Equipment Safety Program and Forklift Operator Training	Employees working on, near, or with heavy equipment
Trenching and Excavation Safety Program	Employees working on or near trenches or excavations
Fall Protection Program	Employees required to work at elevation (> 6 feet)
Scaffolding Safety Program	Employees required to erect or use scaffolding
Hoisting and Rigging Safety Program	Employees responsible for performing and/or supervising hoisting and rigging
Crane Safety Program	Employees supervising or performing crane operations
Flammable and Combustible Liquid Storage and Handling	Employees responsible for the handling and storage of flammable or combustible liquids or gases
Hot Work Permits	Employees performing hot work
Hazardous Energy Control (Lockout/Tagout)	Employees performing lockout/tagout
Electrical Safety	Employees required to work on electrical systems and equipment
Permit Required Confined Space Entry	Employees required to supervise or perform confined space entry
Hand and Portable Power Tool Safety	All
Housekeeping Policy and Program	All
Hearing Conservation	All
Safe Lifting Program	All
Safe Driving Program	Employees supervising or driving motor vehicles

Table 8.7-5 (continued)
Construction Training Program

Training Course	Target Employees
Hazard Communication	All
Pressure Safety	Employees supervising or working on pressurized systems or equipment
Line Breaking Safety	Employees performing general maintenance or working on pressurized systems or equipment
Respiratory Protection Program	All employees required to wear respiratory protection
Fire Prevention Program	All
HAZWOPER/First Responder	Employees working around hazardous materials or waste
Recognition of and Treatment for Heat Stress	All
First Aid	All
CPR	All

Table 8.7-6
Operations and Maintenance Training Program

Training Course	Target Employees
Site Safety Orientation	All
Injury and Illness Prevention Plan	All
Emergency Action and Evacuation Plan	All
PPE Program	All
Trenching and Excavation Safety Program	Employees performing or supervising trenching or excavation work
100% Fall Protection Program	Employees required to use fall protection
Hoisting and Rigging Safety Program	Employees responsible for the oversight or conduct of hoisting and rigging
Forklift Operator Training	Employees working on, near, or with forklifts
Crane Safety Program	Employees supervising or performing crane operations
Flammable and Combustible Liquid Storage and Handling	Employees responsible for the handling and storage of flammable or combustible liquids or gases
Hot Work Permits	Employees performing hot work
Hazardous Energy Control (Lockout/Tagout)	Employees performing lockout/tagout
Electrical Safety	Employees required to work on electrical systems and equipment
Permit Required Confined Space Entry	Employees required to supervise or perform confined space entry
Hand and Portable Power Tool Safety	All
Housekeeping Policy and Program	All
Hearing Conservation	All
Safe Lifting Program	All
Safe Driving Program	Employees supervising or driving motor vehicles
Hazard Communication	All

Table 8.7-6 (continued)
Operations and Maintenance Training Program

Training Course	Target Employees
Pressure Safety	Employees supervising or working on pressurized systems or equipment
Line Breaking Safety	Employees performing general maintenance or working on pressurized systems or equipment
Relief Valve Maintenance and Testing	Employees performing maintenance or testing of relief valves
Respiratory Protection Program	All employees required to wear respiratory protection
Fire Prevention Program	All
Fire Protection Program	All
HAZWOPER/First Responder	Employees working with hazardous materials or waste
Recognition of and Treatment for Heat Stress	All
First Aid	All
CPR	All

Table 8.7-7
Health and Safety Permits

Permit	Issuing Agency	Application Requirements	Permit Procurement
Trenching and Excavation Permit	Any Cal-OSHA district or field office	Required for the following: • Trenches and excavations more than 5 feet into which personnel are required to enter or that are adjacent to structures • Construction of buildings, structures, scaffolding, or falsework more than three stories high • Demolition of any building or structure or the dismantling of scaffolding or falsework more than three stories high	Submit completed permit application to any Cal-OSHA district or field office prior to commencing construction

Cal-OSHA = California Occupational Safety and Health Administration

FIGURES

Figure 8.7-1